

The only specimen which I have seen is not in fructification, but is otherwise in a very perfect and satisfactory state. In general appearance, especially when placed in water, it might be compared to some kinds of *Potamogeton*, and probably vegetates in quiet and shallow bays. The vesicles, as may be seen in the plate, form an axillary raceme, and no doubt indicate the position of the fructification, which, in more advanced individuals, would be probably found towards the extremity of the branches. In my specimen I observe no trace of it, although the vesicles are present on every part.

EXPLANATION OF PLATE V.

Sargassum echinocarpum.

- Fig. 1. Portion of a branch.
 — 2. Leaf with a vesicle at its apex.
 — 3. Leaves producing vesicles.
 — 4. Vesicle with foliaceous expansion of the stalk.
 — 5. Vesicle in its simplest form.
 — 6. Receptacles, with a leaf passing into a vesicle.
 — 7. Portion of a raceme. 5—7 magnified.

Sargassum Campbellianum.

- Fig. 1. One of the smaller branches.
 — 2. A leaf with raceme of fructification.
 — 3. Vesicle.
 — 4. Receptacles passing into leaves and vesicles. 2—4 magnified.

Sargassum debile.

- Fig. 1. Portion of a branch.
 — 2. Leaf and vesicles; the last magnified.

XXXI.—*Reply to Sir Philip Egerton's Letter on the Placodermi.*
 By FREDERICK M'COY, M.G.S. & N.H.S.D. &c.

To the Editors of the Annals of Natural History.

GENTLEMEN,

I REGRET to have to trouble you with a few lines in reply to the above article in your last Number. The opinion I entertained of the value of your space and the reader's time induced me to condense the gradually acquired experience of years into a very brief paragraph, proposing the family *Placodermi* for certain Ganoid fish, in my paper in the 'Annals' of July last. This brevity has I fear caused me to have been misunderstood by Sir P. Egerton, who has reprinted the paragraph in his letter, adding, that "Not having seen the specimens which have induced Mr. M'Coy to propose this new classification, I am unable to form any opinion as to whether he is justified or not in making the change." I

can scarcely imagine any one reading the paragraph in question could think I proposed this change from the characters merely of the few new Carboniferous species I was then describing; on the contrary, it was the result of a careful study of the *Scotch and Russian Old Red Sandstone fishes*, and having of course first made myself master of the writings of Agassiz, Eichwald, &c. on the subject: all the genera I mentioned in that paragraph were previously published Devonian forms, and I should have imagined were well known to Sir Philip Egerton, who I regret did *not* give his opinion on the subject, as it would have been of great value, and rendered more clear the object of his letter. The next passage I confess pained me excessively, as it seemed to impute to me the absurd unworthiness of taking advantage of Agassiz being absent a nine days' journey to make this change in a part of his classification, and to bring a charge against him of separating genera which were closely allied and placing them in different families with which they had no obvious affinity. The fact is, at the time I wrote I had nothing in my mind but the expression of what I conceived to be the natural affinities of the genera, after a laborious examination of the whole subject; I believed that if Agassiz had reinvestigated the matter he would have concurred in what I had done; and even Sir P. Egerton, whose knowledge of the *Cephalaspids* is at least I believe as great as that of any one living, does not dispute it. The passage is, "I cannot however allow a charge to be brought against my friend Professor Agassiz, in his absence, of having grouped together genera under the title *Cephalaspides*, having no obvious affinity with the genus *Cephalaspis*, and having widely separated genera so obviously and closely allied to some of them, that they cannot be separated either by general appearance or any points of structure, without claiming that in justice to Agassiz, his opinions on this subject may be accorded in your pages the same publicity which Mr. M'Coy's observations have already received. The following passages must surely have escaped Mr. M'Coy's memory when he claims to have discovered affinities (supposed to have been overlooked or disregarded by Agassiz) of sufficient value to justify a re-classification of the Palæozoic Ganoids."—I never "claimed" to have discovered affinities overlooked by Agassiz; and so far from forgetting his published opinions, they added considerably to the certainty which I felt of the correctness of the view I have put forward.

The extracts alluded to in the above quotation which Sir P. Egerton has given from Agassiz's Monograph do not invalidate my position, but on the contrary show that Agassiz perceived himself the affinities on which I have acted though *he* did not;

and I am quite uncertain whether they are quoted against my view or in support of it. It reminds one of Cuvier, who, when he first saw some *Palæonisci* from the Copper slate, said, they should be arranged *either* with the sturgeons among the *Chondropterygii*, or with the bony pike among the *Clupeæ*, and yet he missed the almost inevitable conclusion which any one might have drawn from his own evidence, it being reserved for his successor in those inquiries to make the most important improvement in his classification of fish by removing the sturgeons from the remainder of the *Chondropterygii*, with which they had no obvious affinity, and the bony pike from the *Clupeæ*, which group their presence equally disturbed, and uniting them with the aforesaid *Palæonisci* and the like fossil types to form the distinct order of Ganoids.

The facts of the present case are these:—Mr. Lyell long ago discovered the peculiar fish which Agassiz called *Cephalaspis* and made the type of his family *Cephalaspides*; it has the head covered by a single bony shield, the body covered with rhomboidal scales of the ordinary Ganoid construction, and has a large heterocercal tail and caudal fin, such as we so commonly see in the Ganoids of the old rocks: in his last book, Agassiz adds to this family the genera *Pterichthys*, *Pamphractus*, *Polyphractus* and *Coccosteus*, all of which agree among themselves, and differ from *Cephalaspis*, in, 1st, having the head covered with several distinct plates instead of one single shield, as in it; 2nd, in not having the body covered with small rhomboidal scales, as in it, but cased in a few large tuberculated bony plates; and finally, instead of the large heterocercal tail and distinct caudal fin of that genus, having a straight simply pointed tail destitute of caudal fin. In the same work (Monog. of the Old Red Fish) we find a new definition of the family of Cœlacanth fishes, distinguishing them from the Sauroids by the sole characteristic of their body being covered with *rounded, imbricating scales*; and yet strangely enough here we find placed the genera *Asterolepis*, *Bothriolepis* and *Psammosteus*, the only certainly known parts of which are great, irregular, tuberculated bony plates, agreeing most nearly with *Coccosteus*, differing principally in their greater size; and I find it impossible, either from the examination of the fishes themselves or the writings of authors, to trace their connection with the obvious types of the family, *Holoptychius*, *Phyllolepis* and *Glyptolepis*, which strictly agree with the definition. By withdrawing the discordant elements of those two families, the *Cephalaspides* and *Cœlacanthi*, I have left them distinctly and well defined, and by uniting those disjointed members (whose affinity Sir P. Egerton's extracts show to have been recognized by Agassiz) I have formed what seems

to me an equally definite, natural and peculiar family, to which I gave the name of *Placodermi*; and if any palæontologist can give any reasons against this course, I for one should feel grateful for the information.

I have the honour to remain, Gentlemen,
Your most obedient servant,

FREDERICK M'COY.

17 Osborne Terrace, Cambridge.

PROCEEDINGS OF LEARNED SOCIETIES.

ZOOLOGICAL SOCIETY.

Nov. 23, 1847.—Wm. Yarrell, Esq., Vice-President, in the Chair.

The following papers were read:—

1. DESCRIPTIONS OF SOME NEW SPECIES OF AUSTRALIAN BIRDS.
BY JOHN GOULD, ESQ., F.R.S., F.Z.S. ETC.

MELITHREPTUS CHLOROPSIS.

Upper surface greenish olive; head and chin black; crescent-shaped mark at the occiput, and under surface, white; wings and tail brown, margined with greenish olive; apical half of the external webs of the primaries narrowly edged with white; irides dull red; bill blackish brown; naked space above the eye greenish white in some, in others pale wine-yellow; tarsi and outer part of the feet light greenish olive; inside of feet bright yellow.

Total length $5\frac{1}{4}$ inches; bill $\frac{1}{16}$; wing $3\frac{1}{4}$; tail $2\frac{5}{8}$; tarsi $\frac{3}{4}$.

Hab. Western Australia.

Remark.—Allied to *M. lunulatus*, from which it differs in being of a larger size, and in having the bare space over the eye pale green instead of red.

MELITHREPTUS ALBOGULARIS.

Upper surface greenish wax-yellow; head black; crescent-shaped mark at the occiput, chin, and all the under surface, white; wings and tail brown, margined with greenish wax-yellow; irides dull red; bill brownish black; legs and feet greenish grey, with a tinge of blue on the front of the tarsi.

Total length $4\frac{5}{8}$ inches; bill $\frac{5}{8}$; wing $2\frac{7}{8}$; tail $2\frac{1}{4}$; tarsi $\frac{1}{16}$.

Hab. Northern and Eastern Australia.

Remark.—Rather smaller than *M. lunulatus*, from which it differs in the brighter colouring of the back and in the total absence of any black on the chin.

GRUS AUSTRALASIANUS.

The general plumage deep silvery grey; the feathers of the back dark brownish grey, with silvery grey edges; lesser wing-coverts dark brown; primaries black; crown of the head and bill olive-green, the bill becoming lighter towards the tip; irides fine orange-yellow; raised fleshy papillæ surrounding the ears and the back of the head